

**AN INVESTIGATION INTO THE CAUSES OF POOR
PERFORMANCE IN MATHEMATICS IN SELECTED
SECONDARY SCHOOL IN
TORORO MUNICIPALITY
TORORO DISTRICT**

BY

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**A RESEARCH REPORT SUBMITTED TO THE COLLEGE OF
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FULFILLMENT OF REQUIREMENTS FOR THE
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INTERNATIONAL UNIVERSITY**

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DECLARATION

I Okello John declare that this research is my own work and it has never been presented in any other institution for the award of a Diploma or Degree.

Signed: 

Okello John

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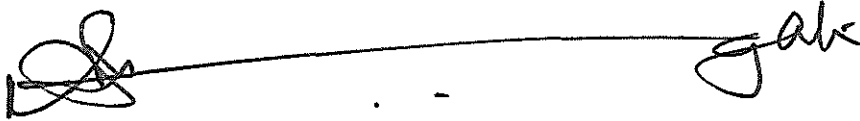
Date: *30th June / 2017*

DEDICATION

I dedicate this book to my beloved wife Christine and my children Edgar,
Churchill, Jessie and Shamah.

APPROVAL

This is to confirm that this research has been conducted under my guidance as university supervisor.

A handwritten signature in black ink, consisting of a stylized initial 'N' followed by a long horizontal line that ends with the letters 'gale'.

Signed:

Namugali .F. Kuloba

(Supervisor)

Date: 30/06/2017 .

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Thank you for psychological and moral support that kept me focused with determination.

ABSTRACT

This research investigated into the causes of poor performance in mathematics in selected secondary schools; Tororo Municipality, Tororo District.

This objectives of this study were: to find out the methods teachers use in teaching mathematics in secondary schools, to establish whether types of instructional materials used by mathematics teachers affect students' performance and to establish students' attitudes towards mathematics and the impact on performance in this discipline.

The study was conducted in eight secondary schools with the respondents being students, teachers and the headteachers of the selected schools.

The study was conducted using cross-sectional survey design because it enabled the researcher to obtain correlated data from different variables.

The research tools used in this study were questionnaires and interview guide and used both qualitative and quantitative approaches.

The data was analysed using percentage and frequencies for comprehensive analysis.

The research findings were that most teachers use problem solving methods in teaching mathematics as indicated at 100% while few of them use lecture methods as indicated at 06%. It was also fund out that the use of instructional materials in mathematics classes was almost negligible.

In this study, it was recommended that the ministry of education should harmonize the policy of teaching mathematics by providing teaching and learning resource organize in-service training for mathematics teachers and among others.

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ABBREVIATIONS AND ACRONYMS

EDC	Curriculum Development Centre
R'S	Reading, Writing And Arithmetic
MUC	Millennium Universal College
KCPE	Kenya Certificate Of Primary Education
TOPA	Tororo Progressive Academy
UNEBC	Uganda National Examinations Board
RISM	Priorities In School Mathematics Project

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter discusses the background information to the study, the purpose of the study, the statement of the problem, specific objectives and research questions. It also highlights the scope of the study, significance of the study, specific hypothesis, and limitations of the study as well as definition of terms that were used in the study.

1.1 Background of the study

Mathematics is a subject of symbols. It was introduced in Uganda by the British colonialists in the 16th Century in schools as arithmetic being one of 3RS (Reading, writing and Arithmetic) which was basically dealing with numbers. Mathematics has been developed over a time frame to hold a number of components like algebra, geometry, trigonometry, statistics and may others.

This extension has made the subject to hold value and become a necessity to the extent that it is a compulsory subject at ordinary level and requirement for doing any science combination at advanced level.

Some institutions also have it as a requirement for admission like of recent the teachers training colleges have put it as a requirement that is to say one must have passed it at ordinary level.

The subject has become a foundation for other subjects like physics, Chemistry, Agriculture, Accounts, commerce, economics to mention but a few.

Today the performance in Mathematics has been criticized at all levels of our education system due to the low marks being obtained by the students and low number of those excelling in it. This raises questions of thoughts of how the subject can be improved in terms of performance at all levels in schools.

Among the challenges faced by students in secondary schools in mathematics is deteriorating in performance as they move from primary seven to senior one. This problem does not only result into poor performance but also affects the continuation with the subject at all levels of education as the children climb the ladder of education.

It similarly to create a negative attitude in the children towards this subject. This has been brought about by among others poor methods of teaching being used by the majority of the teachers.

In addition to the above, if learners are exposed to practical tasks using variety of materials, they have higher chances of performing better in mathematics.

The family level of education would be a great deal of the child's attitude is changed positively and assistance is rendered to him or her by those who have gone through the system successfully children need to be given direction of the benefits they will have in learning mathematics in order to have them perform better.

Therefore basing on the above problems the researcher was provoked to investigate into the effect of attitude towards the academic performance of students in mathematics in secondary schools in Tororo Municipality, Tororo district.

1.2 The purpose of the study

The purpose of the study was to find out whether there is a perceived significant relationship between learners, school and non school related factors, namely availability of instructional materials, gender, students, class size, teaching methods and students achievement in mathematics in Tororo Municipality secondary schools. The study was to establish whether these factors significantly influenced students' performance in mathematics.

1.3 The statement of the problem

The importance of mathematics in our daily life is recognized worldwide and as a result of this, the subject has been given a special place in the school curriculum.

However, students' poor performance is globally known, Uganda not being different specifically in secondary schools in Tororo Municipality in Tororo district.

May be poor performance is caused by failure to use instructional materials when teaching, attitudes of teachers and students thinking that mathematics is hard and methods teachers use when teaching mathematics.

1.4 Specific objectives

The specific objects of the study were;

- a) To find out the methods teachers use in teaching mathematics in secondary schools.

- b) To establish whether types of instructional materials used by mathematics teachers contribute to students' performance.
- c) To establish students' attitudes towards mathematics that influences their performance in the subject.

1.5 Research questions

This research sought answers to the following questions:

- a) What are the methods teachers used when teaching mathematics?
- b) What are some of the instructional materials used when teaching mathematics?
- c) What attitude do teachers and students have towards mathematics?

1.6 Scope of the study

1.6.1 Geographical scope

The study established the attitude, instructional materials and methods used by teachers in the teaching and learning mathematics.

The study was conducted amongst the selected schools in Tororo municipality in Tororo District.

Tororo Municipality is located in Tororo district and it is made up of Eastern Division, and Western division. Tororo is boarded by Mbale district to the north Busia district to the south, Butaleja district to the west and Kenya to the east.

1.6.2 Content scope

The focus of this study was to investigate into the causes of poor performance of mathematics in selected secondary schools, Tororo Municipality.

The study however, confined itself to the methods used by teachers in teaching mathematics, the types of instructional materials used by

mathematics teachers and how they affect performance and students' attitude towards mathematics.

1.6.3 Time scope

The researcher felt that the study was to take a time frame work of about three months and by the end, he will have got sufficient data about the topic. The researcher visited each school about four times that is getting permission from headteachers, taking questionnaires, making school observations, conducting oral interview and collecting data from the respondents.

Table 1.1: A sample of schools and teachers

Schools	Teachers	Headteachers
Tanna Memorial School	02	01
MUC-Tororo	02	01
Tororo Parents Girls School	02	01
Mama Kevin School	02	01
Tororo Universal College	02	01
TOPA Secondary School	02	01
Global High School	02	01
Tororo Comprehensive School	02	01
Total	16	08

The above chosen schools formed a good sample where other schools across the municipality were judged in relation to the topic.

1.7 Significance of the study to the;

a) Administrators

The beneficiaries of this study which focuses on the factors that influence secondary school students performance in mathematics is to contribute towards the enhancement of teaching and learning of secondary school mathematics. The findings of the study will be therefore significant.

b) Policy markers

The findings of the study was to assist the educational policy makers to reconsider the existing teacher training programmes.

Education findings was to sensitize them to harmonize curriculum for teaching institutions and policies.

c) Mathematics teachers

The findings were to provide them guidance on the selection of suitable methods and instructional materials for teaching and learning mathematics.

d) Mathematics researchers

They were to use this study as the basis for further study in mathematics education.

e) The researcher

The study gave the researcher an opportunity to apply the theoretical knowledge obtained from classroom planning and put it to real practice thereby acquiring more skills in conducting research, data analysis, presentation and interpretation.

Through this study the researcher would be able to fulfill the requirement for the award of a bachelors degree of kampala international university

f) **The students.**

The finding was to give guidance to the students to change their attitudes towards mathematic

1.8 Definition of terms

The following terms were used in this study as defied below;

Boarding - school where students attend classes without going Home after the end of a day's learning.

Day school - where students learn and go back home after Day's learning.

Girls' school - school with female students only

Gender - refers to male and female students.

Large class size - 82studnets and above

Mixed school - school where both boys and girls learn. It could be Performance - Measure of students score attained in a test or exams.

Teaching methods - Is a body of skills or techniques which a teacher involves in his /her students during the teaching and learning process.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter discusses previous literature relevant to the respective specific objectives in this research. This study was carried out after realizing that failure rates in mathematics is on the increase in Uganda certificate of education (UCE). It therefore covers the following areas.

2.1 The essence of mathematics education

The main goal of mathematics education is to promote students learning of mathematics. It focuses on the content and the tools, methods and the approaches that facilitate the teaching/learning processes.

This makes mathematics education essentially practical and dynamic, necessitating new changes in teaching of the subject. According to Bus Bridge and Womack (1991), there have been many changes in both the content and the style of mathematics teaching for the last thirty five years. They note that modern methods made greater demands for visual and physical aids to help children understand concepts and processes. The old didactic methods of teaching mathematics, which involved rote learning, are gradually being replaced by interactive teaching methods.

Eke (2010) carried out a survey study on the various roles of using instructional materials in teaching mathematics in secondary schools in the Isukwata local government. The findings showed that instructional materials make abstract ideas concrete and easier to understand.

According to data released by the ministry of Education science and Technology on December, 31st 2014 of the 839,759 of standard eight pupils took the 2013 KCPE, which serves as the form one entrance examination, 467,353 scored below the average, receiving scores 250 out of the possible 500marks.

UWEZO Kenya's report findings of 2012 showed little progress on children's learning capabilities.

TIMSS report of 2011 on mathematics result analysis showed that mathematics achievement is improving over the years in some member countries, Kenya is not one though. The percentage of high level and low level students increased in both 4th and 8th grades. The governments of many countries are struggling in considering how to provide best mathematics education for their students. According to the report, students' ability in mathematics is deteriorating over their school years, as a student grows older, mathematics competences decrease.

Williams (2008) identifying difficulties at an early age prevent children from developing inappropriate strategies and misconceptions that can become long term obstacles to learning. Early intervention can also combat the development of anxiety which can become a significant factor among older students, (Dowker, 2004). It can be assumed in most cases that if intervention starts early and specific weakness are concentrated upon, they might not need to be very long or intensive, (Dowker 2009).

Change (2012) mentioned that assessment of students mathematical understanding should not be solely based on their writing of the problems but also on their demonstration and oral interpretation.

Burns and Hamm, (2011) says concrete manipulative are concrete objects used as tools that allow students to experiment and explore mathematical concepts. Boggan, Harper on whitmire (2010) state that manipulative have been used for many years and from several different civilizations to solve mathematics problems that they have encountered every day.

Hope M. (2006) in his book opined that number theory, numeration and computation remain important components of the current school mathematics curriculum, while it is true that computational and basic number facts have been emphasized to the detriment of other strands of mathematics. We all understand that students' proficiency in these areas is essential for students to be successful in understanding math concepts.

Gurbuz, (2010) says instructional strategies need to be identified where the use of manipulative are often suggested as some of the effective approaches to improve students' mathematics achievement. Sherman & Bisanz, (2009), mathematics manipulative based instructional techniques are approaches that include opportunities for students to physically interact with the objects target information.

2.2 Methods of teaching mathematics

These are various techniques and methods of teaching mathematics. Every teacher uses his/her specific way of presenting a lesson. That is why many scholars argue that there are as many methods of teaching as there are teachers. On the other hand, there is no one best or most effective methods in teaching mathematics. Miheso (2002) notes that no single teaching methods can be the method of choice for all occasions.

However, much is known about the characteristics of effective methods of teaching mathematics. What is important for every teacher is to select and use the methods with such characteristics. The quality of implementing mathematics programme is ultimately determined by the teachers' performance and effective work in the classroom situation (Rukangu 2000).

There are a number of principles that appear frequently in any literature on effective mathematics instructions. These include a problem oriented learning focusing on meaning, whole class situation and small group work.

In a review of 80 research studies on grouping in mathematics classroom, it was concluded that students working in small groups significantly out scored students working individually in more than 40 percent of the studies (Bergeson et al, 2000). Miheso (2002) argues that most studies on achievement on cooperative learning found that, there was significantly greater achievements in cooperative classes than in the control classes.

The types of methods that teachers use when teaching mathematics in secondary schools for example lecture methods, problem solving, demonstration among others have never been empirically documented. Thus there was a need for this research.

2.2.1 Instructional materials

The use of appropriate educational materials is equally important as the use of effective teaching methods when presenting mathematics lessons. To gain optimal results the use of these materials should not be limited to the teacher's demonstration, but rather students must use them in meaningful ways. Effective instruction depends on both the

quality of the resources and the skill of the teacher (Gautther & Lawson, 2004:25).

Many studies show that the use of concrete materials can produce meaningful use of notational systems and increase student concept development. According to Douglas and Kristine (2000), in a comprehensive review of activity based learning in mathematics in Kindergarten through grade eight, concluded that using manipulative materials produces greater achievement gains than not using them. They also note that the long-term use of concrete instructional materials by teachers knowledgeable in their use improved student achievement and attitudes.

Eshiwawani (1983) points out that the availability of text books and achievements have position correlation.

Jones (1970) found that the television instruction in mathematics seems to produce a different effect on pupils' achievement at different ability levels.

A good number of researchers assert that the use of appropriate concrete materials in teaching mathematics plays an essential role in enhancing students' performance in the subject. However, the teaching materials used in mathematics classroom in Tororo Municipality, secondary schools in Tororo District had not been recorded. Hence the need for this study.

2.2.2 Students' attitudes towards mathematics

It is most probable that students' attitudes towards mathematics influence the efforts they put in understanding and practicing mathematics concepts and skills. This will in turn affect their achievements in the subject. If for example a student believes that mathematics is so hard that only very few students can learn it, and

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter covers the procedures and strategies used in collecting and analyzing data. The main sections discussed in this chapter include methods of investigation, subject selection and design instruments or research tools, research procedures and data analysis.

3.1 Research Design

The study was to be executed using across sectional field correlation study and descriptive survey design. Was selected because it enables the researcher to obtain and correlate information from different study variables using questionnaires and interview guide to collect data as per the objectives stated.

3.2 Sampling procedure

This is concerned with how respondents were selected during the study. Probability random sampling method was used and the researcher specifically used systematic random sampling and stratified random sampling method.

By systematic random sampling method, respondents were selected after every given equal interval.

3.3 Target population and sample size.

The study was carried out in Tororo Municipality, Tororo District. It was in eight selected secondary school involving head teachers, teachers and form four students.

Table 1.3 selected teachers and head teachers

Schools	Teachers	Heateachers
Tanna Memorial School	02	01
MUC –Tororo	02	01
Tororo Parents Girls School	02	01
Mama Kevina School	02	01
Tororo Universal College	02	01
TOPA Secondary School	02	01
Global High School	02	01
Tororo Comprehensive School	02	01
Total	16	08

3.4 Instruments /research tools

Two types of instruction was used in the collection of data as described below.

(a) Questionnaires

Open questionnaires were used to study teachers because of high level of education which enables them to read, understand and fill the questionnaires properly. The instrument helped to collect data from many respondents within the shortest time possible.

(b) Interview guide

The researcher used this instrument to collect data from students. This is because the student may have difficulties in interpreting questionnaires. This tool was very important because it allowed the researcher to ask for more clarification from the respondent in case more information about the guide is needed.

3.5 Validity and reliability of research instrument.

Validity refers to the extent to which a given tool or instrument can accurately measure what it is used to measure. To measure the validity of the instrument, the researcher used Experts judgment. He gave it to the supervisor to determine its validity (content validity index-cvi).

Reliability refers to the extent to which an instrument is consistent in measuring what is used to measure.

Consistency means that each time an instrument is used to measure, it will give the same results. The researcher applied a test retest method to determine the reliability of the instrument.

3.6 Data collection procedure.

The questionnaire was written and taken for approval by supervisor and handed back to the interviewer.

The researcher got an introductory letter from Kampala International University to ask the respective. School head teachers to grant the researcher permission to make study.

The respondents were asked to be honest and provide accurate information. The matter was treated with confidentiality and actual purpose was not disclosed directly to the respondents.

The researcher distributed questionnaires to teachers at the duration of 20-30 minutes for respondent to fill them.

For the case of interview guide the researcher took about 05-10 minutes to complete up the guide for students.

3.7 Data analysis

The data collected was organized and analyzed using both qualitative and quantitative methods. The frequency table and percentage to make the work uniform using the calculator, various percentages was used to give comprehensive analysis of the information.

3.8 Limitations of the study.

This concerns the things which may reduce the validity of findings in the study.

There was emotional biasness of the students or respondents who thought that I was going to report them to the authorities.

The attitude of some teacher was negative on claims that my presence was inter-fearing with their programmes like lesson attendance and personal free time.

The researcher also feared that some questionnaires may not be returned while others left blank hence affecting data collection and analysis.

The researcher also predicted that some respondents had handwriting which made reading of information on the questionnaires difficult.

Above all, the exercise was quite expensive for the researcher in terms of facilitation and costs

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.0 Introduction

This research focused on various factors that influence secondary school students' performance in mathematics in Tororo Municipality in Tororo district.

The results were presented and discussed in accordance with the research objectives and questions in various sections of the chapter, starting with data analysis.

4.1 Data analysis

The collected data were organized and analyzed using both qualitative and quantitative methods. The statistical tallying method was used to tabulate the results from which the analysis was done. Objectives (a) to (c) generated quantitative data were analyzed and measured using descriptive statistics. The open ended question yield qualitative data and were descriptively analyzed and using frequency distribution tables and percentages. The following are the different responses generated by the study.

4.2 Research findings

This section presents the finding of the research in three subdivisions; mathematics teaching methods, instructional materials, teachers’ attitudes towards mathematics and students’ attitudes towards mathematics.

4.2.1 Teaching methods

The teachers’ responses about the teaching methods they used in their mathematics classes were summarized and presented in Figure 4.2. Frequency of the methods used in teaching mathematics.

Figure 4.2. Indicates that very few sampled teachers use lecture method at least some times. It also shows that all of them (100%) use problem solving method either always or often. Very few use lecture method more often. On the other hand, 76%, 98 and 67% of the selected teachers used small group discussions; demonstration and questioning methods.

This shows that the mathematics teachers in Tororo Municipality often use expository approaches rather than interactive teaching methods.

Table 1.4: Teaching methods.

	Response		Response		Response	
Teaching methods	F	Yes (%)	F	No (%)	F	I don’t know (%)
Lecture method	01	06%	12	75%	03	19%
Small group discussion	13	81%	02	13%	01	06%
Questioning methods	11	67%	04	22%	02	11%
Problem solving method	16	100%	00	00%	00	00%
Demonstration	15	98%	01	02%	00	00%

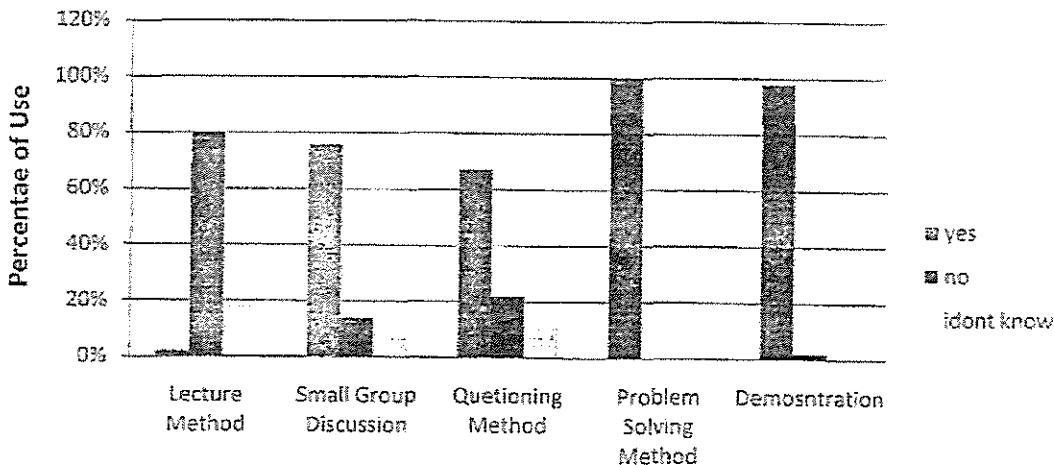
Source-primary data, 2017

Table 1.4. shows what was really happening in the mathematics class room. It indicates that very few teachers (06%) used lecture method frequently.

Questioning, problem solving and demonstration methods were mostly used in the teaching and learning of mathematics as indicated by 67%. These difference can be attributed mainly to the fact that that the real meaning of some of the teaching methods mention in the questionnaire such as small group discussion and problem solving, were clear to most teachers. The study further sought to find out how interactive the mathematic lessons were in Tororo Municipality secondary school the findings are summarized and presented from the interview guides indicates that there was very low teacher student interaction and no student _ student interactions at all during lessons.

Student asked and answered questions in very few cases. It also shows that there was no teacher reinforcement. The students' interview guide indicates further that teachers never used varieties of learning activities.

Figure 1.4 teaching methods



Source – Primary data, 2017

Teaching methods

Figure 2.4 indicates that all the sampled teachers use problem solving method at least some time. It also shows that very few use lecture method. On the other hand almost all the selected teachers use demonstration method.

4.2.2 Instructional materials

The researcher tried to find out what materials were used in mathematics classes and how frequents are summarized in table 2.4.

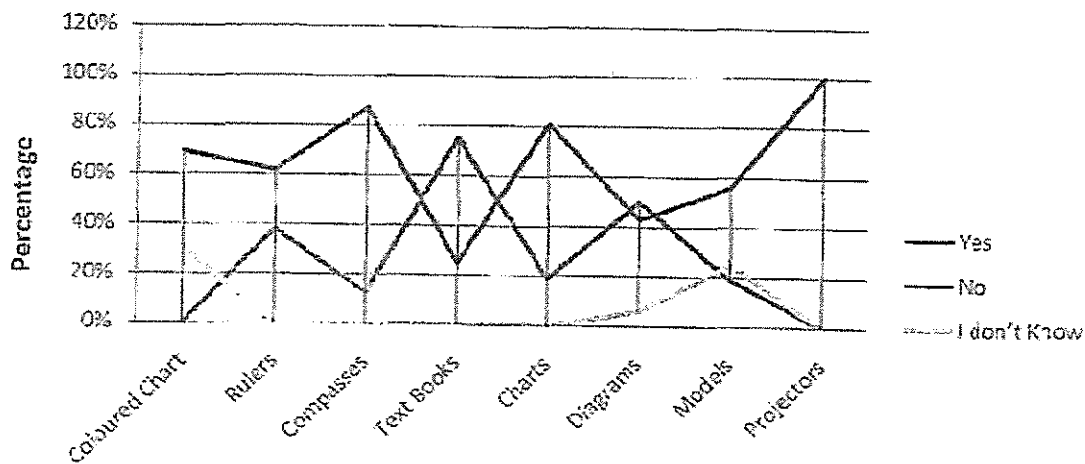
Table 2.4. frequent use of instructional materials in secondary schools in, Tororo Municipality

Resources	Usage					
	Yes		No		I don't know	
	Freq.	Percentage	Freq.	Percentage	Freq	Percentage
Coloured chart	00	00%	11	69%	05	31%
Rulers	06	38%	10	62%	00	00%
Compasses	02	13%	14	87%	00	00%
Text books	12	75%	04	25%	00	00%
Charts	03	19%	13	81%	00	00%
Diagrams	08	50%	07	43%	01	06%
Models	03	16%	09	56%	04	25%
Projectors	00	00%	16	100%	00	00%
Calculators	07	44%	08	50%	01	06%
Computers	00	00%	16	100%	00	00%

Source-Primary Data, 2017

Table 2.4 shows that 44% of the lessons calculators were used frequently. It is worth mentioning that these rulers and calculators were mostly used by the students and not teachers. Coloured chalks, compasses, charts diagrams, models, projectors and computers were really used. Table 2.4 indicates that the use of instructional materials in the mathematics classes is almost negligible.

Figure 2.4 :Frequent Use of Instructional Materials



Source-Primary Data, 2017

Instructional materials

Figure 3.4 indicate that rulers and calculators were used mainly by students and not teachers. Coloured chalk, compasses, charts, projectors and computers were not used.

4.2.3 Teachers' attitudes towards mathematics

The sampled teachers were asked about their attitudes towards mathematics on various aspects of the subject.

A summary of their responses is presented in table 3.4.

Table 3.4: Teachers' attitude towards mathematics

Attitudes	F	Response		F	Response		
		Yes (%)			No (%)	F	Don't Know (%)
Mathematics is difficult	01	06%		12	75%	03	19%
Teaching mathematics does not need resources	00	00%		16	100%	00	00%
Every body can learn mathematics	14	88%		01	6%	01	06%
More practice enhances understanding mathematics concepts	16	100%		00	00%	00	00%
Mathematics is essential for daily life	16	100%		00	00%	00	00%

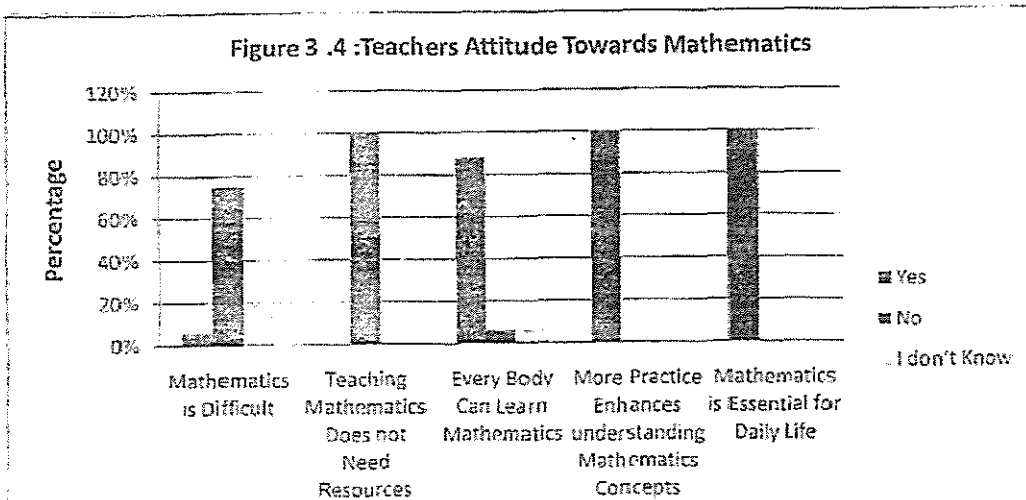
Source – Primary Data, 2017

Table 3.4 shows that majority of the respondents 75% disagree to the idea that mathematics is difficult by nature. Only 06% of them have such believe. On the other hand, all teachers selected for this study believe that teaching mathematics needs resources. Most of them (88%) support the idea that every body can learn mathematics.

All of them agree to each of the following ideas; more practice enhances understanding mathematics concepts, mathematics is essential for daily life, and that mathematics is a continually expanding field of human creation and

invention. The selected teachers were further asked about the possible causes of school students' poor performance in mathematics in Tororo Municipality Secondary Schools. Their responses are summarized in table 4

Figure 3.4 teachers attitude towards mathematics



Source – Primary Data, 2017

Attitudes

Figure 3.4 indicates that all the sampled teachers agree that mathematics is essential for daily life (100%). However they also disagree that teaching mathematics does not need resources (100%).

Table4. 4 possible causes of students' poor performance in mathematics (ranked from 1st to 5th)

Ranks	Teaching methods	Teachers attitudes towards mathematics	Teaching materials	Students attitudes towards mathematics
1 st	37	13	13	06
2 nd	13	56	13	13
3 rd	06	19	50	13
4 th	19	06	19	31
5 th	25	06	06	37

Source – Primary Data, 2017

1st indicates students attitudes, 2nd indicates instructional materials

3rd indicates teachers attitudes, 4th teaching methods, 5th other factors

Table 4.4 indicates that 37% of the teachers sampled for this study believe that teaching methods is the most severe, issue that influences students' performance in mathematics. This is the highest number of teachers that voted in the first rank. More than half of them (56%) say that teachers' attitude towards mathematics is the second main cause of the problem is the use of instructional materials in teaching mathematics. The table also shows that students' altitude towards mathematics is the least possible cause of Tororo Municipality secondary school students' poor performance in mathematics.

The teachers were also asked about other factors that influences student's performance in mathematics. Their responses are summarized in table 5.4.

Table 5.4: other factors that influence student's performance in mathematics

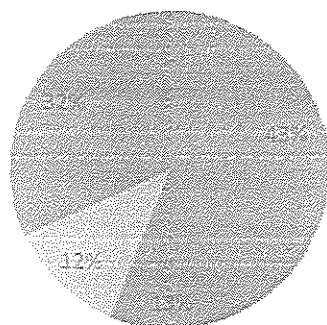
Factors	Number of teachers	percentages
Students' mathematical background	7	43%
Lack of unified curriculum	2	13%
Lack of student motivation	2	12%
Others	5	32%
Total	16	100%

Source- primary data, 2017

Table 5.4 indicates that a good number of the sampled teachers 43% believe that the mathematical background of the secondary school students in Tororo municipality is an important factor that affects their performance in mathematics. From the teachers' responses, it can be seen that lack of unified curriculum and lack of motivation from the side of the students also influences their performance in the subject as indicated by 13% and 12% respectively.

Figure 4.4: Other Factors Influencing Student Mathematics Performance

■ Student Mathematical Background ■ Lack Of Unified Curriculum
 ■ Lack of Student Motivation ■ Others



Source – Primary data 2017

Figure 4.6 indicates that 32% of students mathematical background is an important factor in their performance. 1.3%, 12% of lack of unified curriculum, lack of motivation and other factors affect students' performance.

4.2.4. Students attitudes towards mathematics

Students selected for this research were asked for their attitudes towards mathematics. Table 6.4 summarizes their response.

Table 6.4 students' attitudes towards mathematics

Attitudes	Response		Response		Response	
	F	Yes (%)	F	No. (%)	F	I don't know (%)
I like doing mathematics more than other objects	09	58%	05	32%	02	10%
Mathematics is difficult by nature	05	34%	10	61%	01	05%
Mathematics lessons are boring	03	18%	11	67	03	15%
Mathematics is useful in life	15	97%	00	00%	01	03%

Source – Primary Data, 2017

Table 6.4 shows that more than 90% of the sampled students see that mathematics is useful in life. More than half of the students prefer doing mathematics to other subjects.

3 Discussions

This study was designed to find out the factors that influenced Tororo Municipality secondary school students' performance in mathematics. This section discusses the findings of the research based on the research questions and objectives.

4.3.1 Mathematics teaching methods

The study found that all the teachers selected used problem solving method frequently. In addition 02% of them used lecture method occasionally. However the interactive methods of teaching such as small group discussion and problem solving methods, which are strongly believed to enhance students' performance in mathematics, were used.

According to be Garson etal. (2000) students working in small groups significantly out scored students working individually.

4.3.2 Instructional materials

The study found that calculators were used frequently. The calculator was the second frequently used in teaching resource next to white chalk and the black board which were used in every class every time. Here the use of calculators seemed to be students' choice but not a school policy. This can be deduced from the fact that some used it while others did not. Furthermore the teachers did not use and encourage the students to use the calculators. Text books and rulers were sometimes used. However, the other resource s like compasses, charts diagrams, models, projectors and computers were never used. These findings did not concur with the views of Douglass and Kristin (2000) that teachers should use manipulative materials in mathematics instruction more regularly. Hence these findings could lead to the assertion that the use of teaching resources in mathematics in Tororo Municipality could be a factor which contributes to the secondary school students' performance in mathematics.

4.3.3 Teachers attitudes towards mathematics

The study sought to find attitudes of mathematics teachers in Tororo Municipality towards mathematics. Municipal inspector of schools found that the majority (75%) of the sampled teachers did not perceive mathematics as a difficult subject. All of them felt it is essential for daily life. Although the teachers' responses showed that all the sampled teachers believed that mathematics teaching needed resources, most of them did not use them while conducting lessons. These findings are indicators that generally the mathematics teachers in Tororo Municipality have a positive attitude towards mathematics. Mathematics teachers' beliefs and attitudes towards mathematics play a major role in influencing their students' attitudes and achievements (Nicolaidou and Philippou, 2003). Hence this could lead to a conclusion that the positive attitude of the mathematics teachers in Tororo Municipality is an opportunity which could be used in enhancing effective teaching of the subject

4.3.4 Other factors that influence students' performance in mathematics

The study found that 43% of the sampled teachers said that lack of students' mathematics background knowledge contributes to the students' poor performance in mathematics in Tororo Municipality. They pointed out that this was mainly due to the intensive course programmes in which students cover the syllabus for several grade levels in one academic year. This is a practical problem which exists in Tororo Municipality such coverage may be shallow, speedily covering of syllabus without due regard of students' understanding of various concepts in the subject. These findings could lead to the conclusion that students' poor mathematical background can be a factor that has a negative effect of their performance in the subject.

1.3.5 Students' attitudes towards mathematics

The study sought to establish the student's attitudes towards mathematics and their views about the mathematics teachers' teaching activities. The study found that most of the sampled students in this study said that mathematics is useful in daily life. On the other hand, almost half of the number students see that mathematics is difficult by nature general, it can be deducted that the students' attitude is positive towards the subject. Most of the sampled students believe that mathematics teachers give opportunity to weak students. Hence these findings could lead to the assertion their students' attitudes towards mathematics and their views about mathematics teachers' teaching activities could not be a factor contributing to students' poor performance in mathematics in Tororo Municipality secondary schools.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the research findings after which conclusions, recommendations and suggestions for further research area made.

5.1 Summary of the research findings

The purpose of this study was to establish the factors that influence secondary school students' performance in mathematics in Tororo Municipality in Tororo District. The three factors; mathematics teaching methods, instructional materials and students' attitudes towards mathematics were investigated in this study. The following is a summary of the findings based on the general research questions of the study.

a. Teaching methods

Mathematics teachers in Tororo Municipality in Tororo district used varied methods to teach mathematics either exclusively or mutually. The study found that;

- i. All teachers used expository approach of teaching mathematics which limits students' classroom activities to just listening to the teachers words and copying notes from the board.

These types of methods always minimize students' holistic understanding of the mathematics concepts.

- ii. Heuristic methods of teaching such as small group discussion and problem solving were mostly used in mathematics classes.
- iii. There was no student/student interaction in the classes.
- iv. There was no supervised exercise activity in the mathematics classes.
- v. Passive classroom atmosphere was in most classes.
- vi. Few teachers gave home work at the end of the lesson. Most of those who gave did not mark students' assignments to enhance follow-up.

b. Instructional materials

- i. The use of instructional materials in mathematics classes was minimal.
- ii. Most of the teaching resources that enhance students understanding of mathematical concepts, like projectors and computers were never used though they.
- iii. Although most of the mathematics teachers believe that teaching mathematics needs resources they never used any, other than the white chalk and the chalk board.
- iv. Most of the students used calculators frequently.

c. Teachers' attitudes towards mathematics

Most of the teachers had positive attitudes towards mathematics. They believed that mathematics was not difficult by nature and that any body could learn it.

d. Students' attitudes towards mathematics

- i. Most of the students selected for this study had positive attitudes towards mathematics. They said that mathematics was not difficult by nature.
- ii. Most of the students perceived mathematics teachers' teaching techniques positively.

5.2 Supplementary findings

- i. All the teachers who participated in the study were males.
- ii. More than half of the numbers of teachers were experienced. This can be considered as an opportunity that would contribute to the improvement of the students' performance in mathematics.
- iii. The average class size of the schools sampled for this study was 82 students per class. This indicated that class size was a factor contributing to secondary school students' poor performance in mathematics in Tororo Municipality in Tororo District.

5.3 Usefulness of the study

The findings in this study are quite crucial for improving the teaching and learning activities in mathematics classrooms. Mathematics teachers will benefit from the study for it will give them an elaborated description of the importance of the interactive teaching methods in mathematics. On the other hand, educational policy makers and school managers will find it useful in making decisions about effective teaching methods and the use of instructional materials in teaching mathematics.

5.4 Conclusions

The study found that the interactive methods of teaching mathematics which are core to improving students' holistic understanding of mathematical concepts and eventually enhance their performance in the subject were completely absent in the mathematics classes in Tororo Municipality secondary schools. While most of the mathematics teachers were qualified and experienced, they did not use any teaching/learning aids other than the illustrations on the black board. Yet they felt that the subject is easy for the pupils to learn. Similarly the students felt that the subject is was useful in their lives for their careers would be determined by the subject's results. On the other hand students felt mathematics is difficult to them hence obscuring the significance of the subject since the students like the subject and teachers view that the subject is easy to learn, there was need to address no interactive teaching methods in classes and students perceived difficulty of the subject.

Unless this is done in Tororo municipality secondary school students would be low and therefore poor performance. For this reason, the following recommendations were made.

5.5 Recommendations

The study recommended the following:-

- (i) The Ministry of Education, Technology and Sports and the umbrella groups should harmonize the policy of teaching mathematics by;
 - a) Providing teaching and learning resources.

- b) Organizing in-service training for mathematics teachers with regard to teaching methods, use of instructional materials and student assessment.
 - c) Revising the curriculum of the teacher training institutions to improve teaching competence in mathematics education.
- (ii) It was found that the mathematics teachers rarely marked students' assignments and did not make supervised classroom activities. The heads of departments in consultation with the inspectors of schools (mathematics) need to develop a feedback mechanism for both teachers and students.
 - (iii) The intensive course programmes practices in Tororo Municipality secondary schools hinder students in depth learning of mathematics. It is recommended that the course system should be reviewed by the umbrella groups.

5.6 **Suggestions for further study**

- i. The study was basically confined to the secondary schools in Tororo Municipality, Tororo district further and related studies are recommended to be carried out in other districts so that the results could be compared.
- ii. The study was confined to few of the factors that could influence secondary schools students' performance in mathematics. Further and related studies on other factors are recommended to be conducted.
- iii. The study found that the majority of the teachers were professionally qualified to teachers' mathematics yet they did not show the expected professionalism when teaching the subject. Further study on the type of training they received from the colleges and Universities in Uganda is recommended.

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APPENDIX B

Questionnaire for mathematics teachers

Dear respondent,

I am Okello John, a student at Kampala International University conducting a student on “an investigation into the causes of poor performance of mathematics in selected secondary schools Tororo municipality, Tororo district”.

I request you to give the correct information to the questions asked in this questionnaire.

A. Background information

Name Sex..... M F

Qualification Diploma Bachelors Maters

Experienceyears school.....

Responsibilities held.....,,

B. Teaching methods

i. What are the methods you use in teaching mathematics?

.....
.....
.....

ii. Among the methods above, which ones are most commonly used?

.....
.....
.....

iii. Do you give mathematics test to students in your class?

Yes

No

v. How often do you give these tests?

Frequentl

Occasionally

Rarely

Not at all

v. Do you mark, correct and revise exercise and test in mathematics?

Yes

No

Some Times

C. Instructional materials

i. Do you use instructional materials in teaching mathematics?

Yes

No

Sometimes

ii How often do you use instructional material in class?

Frequently

Rarely

Not used

What are the instructional materials you during mathematics lessons in your class?

.....
.....
.....

Does the use of instructional materials in mathematics affect student's performance?

Yes

No

Explain the above

.....
.....
.....

D Attitude towards mathematics

i. What is your attitude towards mathematics?

.....
.....
.....

ii. What are the student's attitude towards mathematics?

.....
.....

iii. How does attitude impact on performance of mathematics as a discipline or subject?

.....
.....
.....

iv. What other factors affect student's performance in mathematics

.....
.....

Thank you for your responses

APPENDIX C

INTERVIEW GUIDE FOR THE FOCUS GROUP DISCUSSION WITH STUDENTS

1. Which methods do your teachers use during the teaching and learning of mathematics in your school?
2. Which methods are commonly used among the above?
3. Do you have discussion groups in mathematics?
4. Do teachers use instructional materials during the teaching and learning of mathematics in your school?
5. Which are some of the instructional materials used in mathematics?
6. How frequent do the teachers use instructional materials in mathematics lessons?
7. How do these instructional materials affect the performance of mathematics?
8. Do teachers set tests and exercise in mathematics?
9. Are these exercises and tests marked and revised by the teachers?
10. What is your attitude towards mathematics?
11. How does your attitude towards mathematics affect performance of the subject?
12. What other factors affect performance of mathematics in your school?

APPENDIX D

BUDGET ESTIMATES

S/NO.	ITEM	PRICE	COST
1	Stationary 5 reams	15,000	75,000
2	Transport	100,000	100,000
3	Feeding 15 days	5,000	75,000
4	Typing/ printing	120,000	120,000
5	Photocopying	60,000	60,000
6	Binding 3copies	10,000	30,000
7	Supervision	100,000	100,000
8	Miscellaneous	30,000	30,000
TOTAL			590,000

